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material, while low temperatures inhibit it. In cold preparations one finds collections of chromatin which stain blue and are called pseudonucleoli. SCHRAUMEN found the same in the cells of shoots of *Vicia Faba* kept at both high and low temperatures. GEORGEVITCH did not find them in warm preparations. In cold preparations the nucleoli show an increase in size, mass, and numbers.—R. CATLIN ROSE.

Fossil Osmundaceae.—KIDSTON and GWYNNE-VAUGHAN¹³ have continued their interesting investigations on the fossil Osmundaceae. In the case of the most important of the species which they describe (*Thamnopteris Schlechtendalii* Eichwald) there can apparently be no doubt that they have really to do with the remains of an osmundaceous fern. They find that in this species the center of the stele is marked by the presence of a mass of short tracheids without any admixture of parenchyma, which curiously enough they regard as the equivalent of a pith. It is surely begging the question as to the origin of medullary structures, to regard tissues which admittedly are entirely tracheary and contain not the slightest admixture of parenchymatous cells as equivalent to the medulla of the higher plants. The difficulty of regarding the central mass of short tracheids in *Thamnopteris* as a pith is rendered insuperable, apparently, by the fact that the leaf traces originate from the stele exactly as in those cases where no pith is present, that is without giving rise to any foliar gaps. The views entertained by the present authors and the majority of English writers on anatomy encounter an additional difficulty in that they are quite unable on their hypothesis to explain the presence of internal phloem and internal endodermis in closed steles. These find apparently a very simple and natural elucidation in connection with the reduction theory now advocated by a considerable number of American anatomists.—E. C. JEFFREY.

Bennettitales.—NATHORST¹⁴ has described the more or less complete reproductive apparatus of a number of bennettitoid forms. There are three species of *Williamsonia* from the Jurassic beds of Whitby and Scarborough, England. In these were found in different cases both microsporangia with microspores, and seeds. The structure of the microspores is illustrated by admirable photomicrographs. A new genus (*Wielandiella*) has a very remarkable vegetative organization. The stem branches freely in an apparently dichotomous manner and is quite slender. The cones occur in the forkings of the branches. The vegetative structure resembles that of the problematic *Anomozamites*. The cones showed remains of both pollen and seeds. The structure of the microspores of a third genus (*Cycadocephalus Sewardi*) is described. These are remarkable for their close resemblance to fern spores. For comparison, a figure of *Wel-*

¹³ KIDSTON, R., and GWYNNE-VAUGHAN, D. T., On the fossil Osmundaceae. III. Trans. Roy. Soc. Edinburgh **46**:1909.

¹⁴ NATHORST, A. G., Paleobotanische Mitteilungen. 8. Handl. Kgl. Svensk. Vetensk.-Akad. **45**: no. 4. 1910.